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ORIGINAL RESEARCH

The efficacy of dexmedetomidine and fentanyl in attenuating Hemodynamic response to direct laryngoscopy and endotracheal intubation

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ABSTRACT
Laryngoscopy and endotracheal intubation lead to tachycardia and hypertension due to sympathetic response. So, anaesthesiologist is always worried about this pressor response which leads to abnormal circulatory reaction which may be severe or prolonged and may cause myocardial ischemia, ventricular arrhythmia and cerebral haemorrhage.
The present Prospective randomized double blinded study was carried out in 60 Patients admitted for surgeries under general anaesthesia in department of surgery, ENT, orthopaedics at NMCH Raichur selected for variouselectivesurgical procedures with American Society of Anaesthesia (ASA) physical status I and II. We included total 30 subjects in Group D i.e., Dexmeditomedine and in Group F i.e. Fentanyl. When we compared the baseline parameters between two groups, the difference was not statistically significant ($p>0.05$). Means SPO2 and HR at 1 minute was significantly lower in Group D (99.84±0.47 and 87.12±9.39) as compared to Group F (100±0 and 91.72±7.23). Mean SBP, DBP, MAP and HR in Group D was significantly lower as compared Group F at 1 minute, 2minute, 3 minute, 4 minute, 5 minute and 10 minutes after intubation ($p<0.05$).
Dexmedetomidine is superior and better drug compared to fentanyl to reduce haemodynamic response i.e., attenuation of pressor response to laryngoscopy and tracheal intubation with single premedication dose.
Key words: Dexmeditomedine, fentanyl, pressor response, tracheal intubation

INTRODUCTION

Laryngoscopy and tracheal intubation are noxious stimuli which evoke a transient but marked sympathetic response manifesting as increase in heart rate (HR) and blood pressure (BP). These changes are maximum immediately after intubation and last for 5-10 min. In patients with cardiovascular disease, these hemodynamic changes can leadtolife-threateningcomplicationssuchasacuteheartfailure,myocardial ischemia, and cerebrovascular accidents[1].

Laryngoscopy and endotracheal intubation leadtotachycardiaand hypertension due to sympathetic response[2].So, anaesthesiologist is always worried about this pressor response which leads to abnormal circulatory reaction which may be severe or prolonged[3].The circulatory response in the form of increased heart rateand raised blood pressure usually occurs for short duration and is unpredictable. This transient increase in blood pressure and pulse rate does not cause any harm in healthy individuals but may create problem in patients with myocardial insufficiency or

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cerebrovasculardisease3whichmayfurthercausecomplications likepulmonaryoedema, myocardial infarction or cerebrovascular accidents[4, 5].

Conventional treatment methods include topical lignocaine sprays, deeper planes of anaesthesia by inhalational/intravenous (IV) agents or opioids, calcium channel blockers, and vasodilators such as sodium nitroprusside and nitroglycerine[6].

Although there are various methods, research is still in progress for techniques of attenuation of pressor response to laryngoscopy and intubation[7].

Alpha-2(α2)-adrenoceptoragonistsmayprovideanalternativetechniquetothe currently used adjunctive anesthetic agents because of their hemodynamic stabilizing and anesthetic-sparing effects[8].

Various prophylacticinterventions have been tried to blunt thisstress response; administration of local anaesthetics, opioids, beta blockers, alpha 2] adrenergic agonists, vasodilators, magnesium, or increased concentrations of volatile anesthetic[9].

One of the most studied drugs to attenuate the hemodynamic response to laryngoscopy and tracheal intubation is fentanyl[10-13].Fentanyl is a short acting synthetic opioids agonist 75-125 times more potent than morphine. Several trials have triedvaryingdosesfrom2µg/Kg-8µg/Kggiven1minuteto10minutesbeforeintubation[14, 15].High doses however are fraught with the risk of respiratory depression and the need for postoperative elective ventilation, we therefore used the lower dose range.

Dexmedetomidine is another drug which is increasingly being used for the same purpose. It is relatively new alpha 2 agonist approved by FDA (Food and drug association) in 1999. Dexmedetomidine is highly selective, short-acting central alpha2 agonist. It reduces sympathetic responses to airway instrumentation thereby minimizing changes in blood pressure and heart rate during laryngoscopy and intubation. After a bolus of 1µg/kg, a biphasic response is seen. Activation of alpha 2 receptors by dexmedetomidine leads to dose dependant sedation, anxiolysis, analgesia and decrease in plasma catecholamine concentration. It reduces sympathetic responses to airway instrumentation thereby minimizing changes in BP (Blood pressure) andHR (Heart rate) during laryngoscopy and intubation[15].

METHODOLOGY

STUDY POPULATION

PatientsbelongingtoASA-GradeIandIIundergoingelectivesurgeries undergeneral anaesthesia.

STUDY PERIOD: 18 months.

STUDY DESIGN: Prospective randomized double blinded study.

SAMPLING TECHNIQUE: Simple random sampling.

INCLUSION CRITERIA

- Patients with ASA physical status I and II.
- Age between 18-60 years and both gender.
- Mallampatti's Class I and II.
- Patients undergoing elective surgeries under general anaesthesia.

EXCLUSION CRITERIA

- Patients with Cardiorespiratory compromise.
- Patients with Asthma and COPD (Chronic Pulmonary Obstructive Disease).
- Patients with history of drug abuse or alcohol abuse.
- Patients with known allergy to Clonidine or Dexmedetomidine.
- Patients onbeta-blockers,antidepressants,antipsychotics,anxiolytics and anticonvulsants.
- Mallampatti Class III and IV.
- Patients with anticipated difficult airway.
- Patients with previous history of difficult intubation.
- Morbid obesity, pregnancy.
- Patient refusal for the procedure.
- PatientsinwhomIntubationtimeexceededmorethan 30secondswillbe excluded from study.

METHODS OF DATA COLLECTION

After obtaining institutional ethical committee approval and written and informed consent from the patient, 60 patients satisfying the inclusion and exclusion criteria will be randomly allocated using a computer-generated randomnumbertableand sealed envelope technique to one of the following two groups of 30 patients each.

Group D- will be receiving Dexmedetomidine 1µg/kg i.v diluted to 10ml with normal saline, over 10 min just before induction of general anaesthesia.

Group F- will be receiving Fentanyl 2 µg/kg i.v diluted to 10ml with normal saline, over 10 min just before induction of general anaesthesia.

AllthepatientswillundergothoroughPre-AnestheticEvaluationwhich includes a detailed history taking, physical examination and necessary investigationslike Complete Blood Count (CBC), Blood Urea, Serum Creatinine, Chest X-ray and Electrocardiogram (ECG). Tablet Alprazolam 0.5 mg and Tablet Rantac 150 mg will be given at night before surgery and at 6 am on the day of surgery.

Patients will be explained about the procedure and a written informed consent will be obtained. All the patients will be kept Nil per Oral (NPO) for atleast 6 hours. Patients will be taken on the operation table and multipara monitor will be connected. Preoperative heart rate and SBP, DBP, MAP, Respiratory rate, oxygen saturation, will be noted. Intravenous line will be secured. Patients will be premedicated with

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Midazolam 0.03mg/kg i.v, Ondensetron 0.1mg/kg i.v, tramadol 2mg/kg i.v. All other premediction which have any effects on the heart rate, blood pressure or on autonomic nervous systems will be strictly avoided.

Then patients of Group D will be receiving Dexmedetomidine 1µg/kgi.v diluted to 10ml with normal saline, over 10 min and patients of Group F receiving Fentanyl 2µg/kg i.v diluted to 10ml with normal saline, over 10 min.

Senior Anesthesiologist will prepare the drug for intravenous infusions and codes them. Then it will be handed over to ResidentAnesthesiologistfor administrating to the patients. This Resident Anesthesiologist is unaware of the contents of the syringe and he will be recording the parameters. The patient will also be unaware of the group which they belong to.

Patients will be pre-oxygenated with 100% oxygen through Bain's circuit for 5 minutes and then induction will be done with Inj. Propofol 2mg/kg i.v body till loss of eye lash reflex. Then inj. Vecuronium 0.1mg/kg i.v will be given and patient was ventilated for 4 minutes. Then a smooth, swift and gentle laryngoscopy will be attempted using standard technique and patient will be intubated with appropriate size cuffed endotracheal tube.

Patients were subsequently maintained with O2:N2O=40:60%. Next 10 min no other pharmacological agents, intravenous or inhalational will be administered to the patient. Then vitals parameters like heart rate, SBP, DBP, MAP, Oxygen Saturation, will be monitored 1,2,3,4,5 and 10 minutes.

Any hypotension (SBP fall >20% from baseline) will be treated with increments of IV Mephentermine 3mg and incidence of bradycardia (HR<50 beats) will be treated with IV Atropine 0.6mg. Surgery will be allowed to start only after 10 minutes of intubation after noting down the vital parameters. Then anesthesia will be maintained with Isoflurane and Intermittent doses of Vecuronium Bromide.

After completion of surgery oropharyngeal suctioning will be done, neuromuscular blockade will be reversed with dose of 0.05mg/kg of Inj Neostigmine and 0.01mg/kg of InjGlycopyrrolate. After assessing patients' respiration, eye opening, verbal commands, head lifting patients will be extubated and observed for 10 minutes.

RESULTS

Table 1: Comparison of parameters before infusion between Group D and Group F

Group (D/F)			N	Mean	Std.Deviation	t	p	Inference
Before infusion	SBP	Group D	30	120.20	9.37	-0.136	0.892 (>0.05)	Not significant
		Group F	30	120.60	13.08			
	DBP	Group D	30	76.40	6.46	-0.354	0.724 (>0.05)	Not significant
		Group F	30	77.07	8.03			
	MAP	Group D	30	90.90	7.00	-0.306	0.760 (>0.05)	Not significant
		Group F	30	91.57	9.64			
	SPO2	Group D	30	98.20	1.27	0.413	0.681 (>0.05)	Not significant
		Group F	30	98.07	1.23			
	PR	Group D	30	77.07	5.50	-0.326	0.746 (>0.05)	Not significant
		Group F	30	77.53	5.60			

We compared the mean values of SBP, DBP, MAP, SPO2andPRbetweentwo groups and the it was found to be not significant (p>0.05). It means that SBP, DBP, MAP, SPO2 and PR were comparable in both groups.

Table 2: Comparison of parameters at 1 minute between Group D and Group F

Group (D/F)			N	Mean	Std. Deviation	t	p	Inference
At1 minute	SBP	Group D	30	123.47	9.25	1.650	0.042 (<0.05)	Significant
		Group F	30	125.40	13.33			
	DBP	Group D	30	79.40	6.15	-1.490	0.045 (<0.05)	Significant
		Group F	30	82.13	7.95			
	MAP	Group D	30	94.40	6.95	1.955	0.036 (<0.05)	Significant
		Group F	30	96.43	9.37			
	SPO2	Group D	30	100.00	.000a	--	---	--
		Group F	30	100.00	.000a			
	PR	Group D	30	81.33	5.29	-2.987	0.004 (<0.05)	Significant
		Group F	30	85.47	5.43			

Mean SBP in Group D was 123.47±9.25 mmHg and in Group F was 125.40±13.33 mmHg. We compared the difference in the mean values of SBP and found it to be statistically significant (p<0.05). It means mean

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SBP was less in Group D as compared to Group F at 1 minute after intubation.

Mean DBP in Group D was 79.40±6.15 mmHg and in Group Fwas82.13±7.95 mmHg. We compared the difference in the mean values of DBP and found it to be statistically significant (p<0.05). It means mean DBP was less in Group D as compared to Group F at 1 minute after intubation.

Mean MAP in Group D was 94.4±6.95 mmHg and in GroupFwas96.43±9.37 mmHg. We compared the difference in the mean values of MAP and found it to be statistically significant (p<0.05). It means mean MAP was less in Group D as compared to Group F at 1 minute after intubation.

Mean PR in Group D was 94.4±6.95 and in Group F was 96.43±9.37. We compared the difference in the mean values of PR and found it to be statistically significant (p<0.05). It means mean PR was less in Group D as compared to Group F at 1 minute after intubation.

Table 3: Comparison of parameters at 2 minutes between Group D and Group F

Group (D/F)			N	Mean	Std.Deviation	t	p	Inference
At 2 minutes	SBP	Group D	30	121.70	9.11	1.770	0.045	Significant
		Group F	30	123.93	13.02		(<0.05)	
	DBP	Group D	30	77.67	5.99	-2.095	0.041	Significant
		Group F	30	81.43	7.82		(<0.05)	
	MAP	Group D	30	92.37	6.92	-2.520	0.133	Significant
		Group F	30	95.60	9.33		(<0.05)	
	SPO2	Group D	30	100.00	.000a	--	--	--
		Group F	30	100.00	.000a			
	PR	Group D	30	79.33	5.29	-3.080	0.003	Significant
		Group F	30	83.60	5.44		(<0.05)	

Mean SBP in Group D was 121.7±9.11 mmHg and in Group F was 123.93±13.02 mmHg. We compared the difference in the mean values of SBP and found it to bestatistically significant (p<0.05). It means mean SBP was less in Group D as compared to Group F at 2 minutes after intubation.

Mean DBP in GroupD was 77.67±5.99 mmHg and in Group Fwas81.43±7.82 mmHg. We compared the difference in the mean values of DBP and found it to be statistically significant (p<0.05). It means mean DBP was less in Group D as compared to Group F at 2 minutes after intubation.

Mean MAP in Group D was 92.37±6.92 mmHg and in GroupFwas95.6±9.33 mmHg. We compared the difference in the mean values of MAP and found it to be statistically significant (p<0.05). It means mean MAP was less in Group D as compared to Group F at 2minute after intubation.

Mean PR in Group D was 79.33±5.29 and in Group F was 83.6±5.44. We compared the difference in the mean values of PR and found it to be statistically significant (p<0.05). It means mean PR was less in Group D ascomparedtoGroupFat2 minutes after intubation.

Table 4: Comparison of parameters at 3 minutes between Group D and Group F

Group (D/F)			N	Mean	Std.Deviation	t	p	Inference
At 3 minutes	SBP	Group D	30	120.03	8.94	-2.056	0.026	Significant
		Group F	30	123.07	12.95		(<0.05)	
	DBP	Group D	30	76.10	5.84	-2.537	0.014	Significant
		Group F	30	80.60	7.76		(<0.05)	
	MAP	Group D	30	90.77	6.76	-1.898	0.050	Significant
		Group F	30	94.73	9.24		(<0.05)	
	SPO2	Group D	30	100.00	.000a	--	--	--
		Group F	30	100.00	.000a			
	PR	Group D	30	78.33	5.29	-3.115	0.003	Significant
		Group F	30	82.67	5.49		(<0.05)	

Mean SBP in Group D was 120.03±8.94 mmHg and in Group F was 123.07±12.95 mmHg. We compared the difference in the mean values of SBP and found it to be statistically significant (p<0.05). It means mean SBP was less in Group D as compared to Group F at 3 minutes after intubation.

Mean DBP in GroupD was 76.10±5.84 mmHg and in Group Fwas80.60±7.76 mmHg. We compared the difference in the mean values of DBP and found it to be statistically significant (p<0.05). It means mean DBP was less in Group D as compared to Group F at 3 minutes after intubation.

Mean MAP in Group D was 90.77±6.76 mmHg and in Group F was 94.73±9.24 mmHg. We compared the difference in the mean values of MAP and found it to be statistically significant (p<0.05). It means mean MAP was less in Group D as compared to Group F at 3 minutes after intubation.

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Mean PR in Group D was 78.33±5.29 and in Group F was 82.67±5.49. We compared the difference in the mean values of PR and found it to be statistically significant (p<0.05). It means mean PR was less in Group D ascomparedtoGroupFat3 minutes after intubation.

Table 5: Comparison of parameters at 4 minutes between Group D and Group F

Group (D/F)			N	Mean	Std.Deviation	t	p	Inference
At 4 minutes	SBP	Group D	30	119.00	8.84	-2.060	0.028	Significant
		Group F	30	122.10	12.97		(<0.05)	
	DBP	Group D	30	75.20	5.79	-2.636	0.011	Significant
		Group F	30	79.90	7.87		(<0.05)	
	MAP	Group D	30	89.77	6.43	-2.033	0.047	Significant
		Group F	30	93.97	9.32		(<0.05)	
	SPO2	Group D	30	100.00	.000a	--	--	--
		Group F	30	100.00	.000a			
	PR	Group D	30	77.33	5.29	-3.084	0.003	Significant
		Group F	30	81.63	5.51		(<0.05)	

Mean SBP in GroupD was 119±8.84 mmHg and in GroupF was122.10±12.97 mmHg. We compared the difference in the mean values of SBP and found it to be statistically significant (p<0.05). It means mean SBP was less in Group D as compared to Group F at 4 minutes after intubation.

Mean DBP in Group D was 75.20±5.79 mmHg and in GroupFwas79.9±7.87 mmHg. We compared the difference in the mean values of DBP and found it to be statistically significant (p<0.05). It means mean DBP was less in Group D as compared to Group F at 4 minutes after intubation.

Mean MAP in Group D was 89.77±6.43 mmHg and in Group F was 93.97±9.32 mmHg. We compared the difference in the mean values of MAP and found it to be statistically significant (p<0.05). It means mean MAP was less in Group D as compared to Group F at 4 minutes after intubation.

Mean PR in Group D was 77.33±5.29 and in Group F was 81.63±5.51. We compared the difference in the mean values of PR and found it to be statistically significant (p<0.05). It means mean PR was less in Group D ascomparedtoGroupFat4 minutes after intubation.

Table 6: Comparison of parameters at 5 minutes between Group D and Group F

Group (D/F)			N	Mean	Std.Deviation	t	p	Inference
At 5 minutes	SBP	Group D	30	117.93	8.83	-2.670	0.025	Significant
		Group F	30	121.27	12.92		(<0.05)	
	DBP	Group D	30	74.27	5.67	-2.964	0.004	Significant
		Group F	30	79.47	7.75		(<0.05)	
	MAP	Group D	30	88.77	6.48	-2.313	0.024	Significant
		Group F	30	93.50	9.15		(<0.05)	
	SPO2	Group D	30	100.00	.000a	--	--	--
		Group F	30	100.00	.000a			
	PR	Group D	30	76.23	5.26	-3.148	0.003	Significant
		Group F	30	80.53	5.32		(<0.05)	

Mean SBP in Group D was 117.93±8.83 mmHg and in Group F was 121.27±12.92 mmHg. We compared the difference in the mean values of SBP and found it to be statistically significant (p<0.05). It means mean SBP was less in Group D as compared to Group F at 5 minutes after intubation.

Mean DBP in GroupD was 74.27±5.67 mmHg and in Group Fwas79.47±7.75 mmHg. We compared the difference in the mean values of DBP and found it to be statistically significant (p<0.05). It means mean DBP was less in Group D as compared to Group F at 5 minutes after intubation.

Mean MAP in Group D was 88.77±6.48 mmHg and in GroupFwas93.5±9.15 mmHg. We compared the difference in the mean values of MAP and found it to bestatistically significant (p<0.05). It means mean MAP was less in Group D as compared to Group F at 5 minutes after intubation.

Mean PR in Group D was 76.23±5.26 and in Group F was 80.53±5.32. We compared the difference in the mean values of PR and found it to be statistically significant (p<0.05). It means mean PR was less in Group D ascomparedtoGroupFat5 minutes after intubation.

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Table 7: Comparison of parameters at 10 minutes between Group D and Group F

Group (D/F)			N	Mean	Std.Deviation	t	p	Inference
At 10minutes	SBP	Group D	30	116.90	8.83	-3.890	0.001 (<0.01)	Highly significant
		Group F	30	122.03	12.69			
	DBP	Group D	30	73.93	5.88	-3.559	0.001 (<0.01)	Highly significant
		Group F	30	80.30	7.84			
	MAP	Group D	30	88.03	6.53	-3.052	0.003 (<0.01)	Highly significant
		Group F	30	94.30	9.16			
	SPO2	Group D	30	100.00	.000a	--	--	--
		Group F	30	100.00	.000a			
	PR	Group D	30	76.43	5.07	-2.961	0.004 (<0.01)	Highly significant
		Group F	30	80.50	5.56			

Mean SBP in Group D was 116.9±8.83 mmHg and in Group F was 122.03±12.69 mmHg. We compared the difference in the mean values of SBP and found it to be statistically significant (p<0.05). It means mean SBP was less in Group D as compared to Group F at 10 minutes after intubation.

Mean DBP in GroupD was 73.93±5.88 mmHg and in Group Fwas80.30±7.84 mmHg. We compared the difference in the mean values of DBP and found it to be statistically significant (p<0.05). It means mean DBP was less in Group D as compared to Group F at 10 minutes after intubation.

Mean MAP in Group D was 88.03±6.53 mmHg and in GroupFwas94.3±9.16 mmHg. We compared the difference in the mean values of MAP and found it to bestatistically significant (p<0.05). It means mean MAP was less in Group D as compared to Group F at 10 minutes after intubation.

Mean PR in Group D was 76.43±5.07 and in Group F was 80.50±5.56. We compared the difference in the mean values of PR and found it to be statistically significant (p<0.05). It means mean PR was less in Group D as compared to Group F at 10 minutes after intubation.

DISCUSSION

In our study SBP, DBP, MAP and PR was less in Group D as compared to Group F at 1 minute, 2 minutes, 3 minutes, 4 minutes 5 minutes and 10 minutes after intubation in our study. Dexmeditomedine was found to reduce the hemodynamic parameters effectively.

SBP

In our study, mean SBP in Group D was 123.47±9.25 mmHg and in Group F was 125.40±13.33 mmHg at 1 minutes (p<0.05), mean SBP in Group D was 121.7±9.11 mmHg and in Group F was 123.93±13.02 mmHg at 2 minutes (p<0.05), Group D was 120.3 ±8.94 mmHg and in Group F was 123.07±12.95 mmHg at 3 minutes (p<0.05), Group D was 119±8.84 mmHg and in Group F was 122.10±12.97 mmHg at 4 minutes (p<0.05), Group D was 117.93±8.83 mmHg and in Group F was 121.27±12.92 mmHg at 5 minutes(p<0.05) and SBP in Group D was 116.9±8.83 mmHg and in Group F was 122.03±12.69 mmHg at 10 minutes. (p<0.05). We observed Dexmeditomedine as superior in attenuation of rise in SBP as compared to fentanyl in our study.

Srinivas VY *et al.*[16] reported that as compared to that in the Control and Fentanyl groups. The SBP decreased and remained below the baseline value at all the time intervals in Dexmedetomidine group whereas there was alittleriseinSBP during intubation in Fentanyl group and returned to basal value by 3min.

DBP

In our study, mean DBP in Group D was 79.40±6.15 mmHg and in Group F was 82.13±7.95 mmHg at 1 minutes (p<0.05), Group D was 77.67±5.99 mmHg and in Group F was 81.43±7.82 mmHg at 2 minutes (p<0.05), DBP in Group D was 76.10±5.84 mmHg and in Group F was 80.60±7.76 mmHg at 3 minutes (p<0.05), DBP in Group D was 75.20±5.79 mmHg and in Group Fwas 79.9±7.87 mmHg at 4 minutes (p<0.05), DBP in Group D was 74.27±5.67 mmHg and in GroupF was 79.47±7.75 mmHg at 5 minutes (p<0.05), DBP in Group D was 73.93±5.88 mmHg andinGroupFwas80.30±7.84mmHgat10minutes(p<0.05). We observed Dexmeditomedine as superior in attenuation of rise in DBP as compared to fentanyl in our study.

Srinivas VY *et al.*[16]reportedthattheattenuationofriseinDBPinDexmedetomidine group was highly significant as compared to that inFentanyl groups. The DBP is significantly decreased in Dexmedetomidine group and remained below the baseline value at all the time intervals whereas there is insignificant fall of DBP in Fentanyl group.

MAP

Mean MAP in Group D was 94.4±6.95 mmHg and in Group F was 96.43±9.37 mmHg at 1 minutes (p<0.05), Group D was 92.37±6.92 mmHg and in Group F was 95.6±9.33 mmHg at 2 minutes (p<0.05), Group D was 90.77±6.76 mmHg and in Group F was 94.73±9.24 mmHg at 3 minutes (p<0.05), Group D was 89.77±6.43 mmHg and in Group F was 93.97±9.32 mmHg at 4 minutes (p<0.05), Group D was 88.77±6.48 mmHg and in Group F was 93.5±9.15 mmHg at 5 minutes (p<0.05) and MAP in Group D

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was 88.03±6.53 mmHg and in Group F was 94.3±9.16 mmHg at 10 minutes (p<0.05).

We observed Dexmeditomedine as superior in attenuation of rise in MAP as compared to fentanyl in our study.

Srinivas VY *et al*.[16]reportedthattheattenuationofriseinMAPinDexmedetomidinegroupwashighlysignificantascomparedtothatinFentanylgroups. The MAP is significantly decreased inDexmedetomidinegroup and remained below the baseline value at all the time intervals whereas there is insignificant fall of MAP in Fentanyl group.

Patel ND *et al*.[17]reported that Dexmedetomidine (0.5µg/kg) group significantly lower in HR (69.9±9.7 vs 89.5±12.2), SBP (117.9±14.61 vs 136.3±13.74), DBP (71.06±7.55 vs 84.34±7.27) and MAP (86.67±8.89 vs 101.7±8.46) in Group D.

A study[18],compared the effectiveness of fentanyl and dexmedetomidine in attenuating responses to laryngoscopy and intubation and found superiorinattenuatingthe pressure response as compared to fentanyl.

CONCLUSION

Our study demonstrates that intravenous singledoseofDexmeditomedine1µg/kg body weight infused over 10 minutes and Fentanyl 2µg/kg body weight administered over 2 minutes prior to induction are effective in obtunding the hemodynamic stress response to laryngoscopic endotracheal intubation without any significant side effects. However, IV Dexmedetomidine is more effective and superior than Fentanyl in attenuation of haemodynamic stress response to laryngoscopicendo-tracheal intubation without causing any hemodynamic adverse effect.

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